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## PATENT ABSTRACTS OF JAPAN

(11) Publication number: **60021195 A**(43) Date of publication of application: **02.02.85**

(51) Int. Cl.

**B23K 35/30**  
**F16H 53/02**
(21) Application number: **58128475**(22) Date of filing: **14.07.83**(71) Applicant: **TOYOTA MOTOR CORP**(72) Inventor: **UEDA KATSUHIKO**  
**NAKAMURA HITOSHI**(54) **JOINED CAM SHAFT**

(57) Abstract:

**PURPOSE:** To obtain a joined cam shaft consisting of joint members and a shaft member joined to the strength equivalent to the strength of the base metal by subjecting the shaft part of the cam shaft consisting of a steel material and fitting members such as cam members, journal members, etc. formed of a cast iron to join by copper brazing in a furnace.

**CONSTITUTION:** A shaft part 2 consisting of a hollow or solid steel material and separately manufactured fitting members made of a cast iron such as cam members 4, journal members 5, etc. are disposed in prescribed positions and are joined under the following conditions: The shaft part 2 and the above-described fitting members are joined by brazing in a furnace for  $\leq 15$  min in a temp. range of  $1,090W1,150^{\circ}C$  non-oxidizing atmosphere. It is necessary in this case to maintain the hardness of the cast iron fitting members within a  $130W320Hv$  range. The joined cam shaft obt'd. in the above-mentioned way exhibits the characteristic that the crystallization reaction of cast iron of the base metal is more liable to arise in the brazed joint layer in joining by copper brazing to develop the higher strength as the gradient of the concn. of C between the materials to be brazed is

higher. The joint strength between the fitting members and the shaft member is thus made equivalent to or higher than the strength of the base metal.

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